AMENDMENTS TO THE CLAIMS

Claims 1-97 (cancelled).

Claim 98 (previously presented): A computer-implemented method for generating a continuous mathematical model of a feature common to subjects in a subject group, the method comprising:

determining a plurality of sample data sets corresponding to the subjects in the subject group;

determining, from the sample data sets, a plurality of values for one or more mathematical parameters corresponding to one or more basis functions for the continuous mathematical model; and

determining, from the values for the one or more mathematical parameters, one or more distribution-function parameters for specifying one or more distribution functions for the one or more mathematical parameters, wherein a summation of the one or more basis functions multiplied by sampled values of the one or more distribution functions provides the continuous mathematical model of the feature.

Claim 99 (previously presented): A method according to claim 98, wherein determining the sample data sets includes receiving the sample data sets from an external data source and storing the sample data sets in a computer memory.

Claim 100 (previously presented): A method according to claim 99, wherein determining the sample data sets includes measuring values for the feature and storing the values for the feature in the external data source.

Claim 101 (previously presented): A method according to claim 100, wherein measuring the values for the feature includes measuring values of blood pressure for the subjects in the subject group.

Claim 102 (currently amended):   A method according to claim 98, wherein determining the values for the one or more mathematical parameters includes:

determining initial values for the one or more mathematical parameters according to an optimization criterion;

separating the initial values into bins with corresponding bin ~~values~~ ranges; and

determining the values for the one or more mathematical parameters by replacing the initial values with the ~~bin values~~ bins.

Claim 103 (previously presented):   A method according to claim 98, wherein determining the values for the one or more mathematical parameters includes calculating the values for the one or more mathematical parameters from the sample data sets according to an optimization criterion.

Claim 104 (previously presented):   A method according to claim 98, wherein determining the one or more distribution-function parameters includes calculating the one or more distribution-function parameters from the values for the one or more mathematical parameters according to an optimization criterion.

Claim 105 (previously presented):   A method according to claim 98, further comprising:

simulating the feature by generating sampled values of the distribution functions by computer; and

displaying at least one statistical property of the simulated feature.

Claim 106 (previously presented):   A method according to claim 98, wherein determining the values for the one or more mathematical parameters corresponding to the one or more basis functions includes:

selecting a plurality of initial basis functions;

determining a plurality of values for a plurality of mathematical parameters corresponding to the initial basis functions;

determining, from the values for the mathematical parameters corresponding to the initial basis functions, a correlation matrix for the initial basis functions; and

determining, from the correlation matrix, the one or more basis functions according to a de-correlation criterion.

Claim 107 (previously presented):   A method according to claim 98, wherein

the feature is a first feature selected from a plurality of features; and

values for the features other than the first feature and values for the one or more distribution-function parameters specify the one or more distribution functions for the one or more mathematical parameters.

Claim 108 (previously presented):   A method according to claim 107, further comprising:

simulating the first feature by computer, for given values of the features other than the first feature, by generating sampled values of the one or more distribution functions; and

displaying at least one statistical property of the simulated first feature.

Claim 109 (previously presented):   A method according to claim 98, wherein the one or more basis functions include a single basis function and the summation includes a single term.

Claim 110 (previously presented):   A method according to claim 98, wherein the one or more basis functions include a plurality of orthogonal functions over a continuous interval.

Claim 111 (previously presented):   A method according to claim 98, wherein the one or more basis functions include one or more hybrid functions that characterize features common to the subject group over a continuous interval.

Claim 112 (previously presented):   A method according to claim 111, wherein

the continuous mathematical model of the feature includes a model for occlusion of a coronary artery over the continuous interval, and

the one or more hybrid functions include a first function for blood pressure and a second function for cholesterol level.

Claim 113 (previously presented):   A method according to claim 112, wherein the one or more hybrid functions include a third function for a product of the blood pressure and the cholesterol level.

Claim 114 (previously presented):   A method according to claim 98, wherein a computer determines the values for the one or more mathematical parameters and the one or more distribution-function parameters.

Claim 115 (previously presented):   A method according to claim 98, wherein the subjects are biological subjects and the feature is a biological feature.

Claim 116 (previously presented):   A method according to claim 98, wherein the one or more distribution functions include at least one normal distribution function and the one or more distribution-function parameters include at least one corresponding standard-deviation parameter.

Claim 117 (currently amended):   An apparatus for generating a continuous mathematical model of a feature common to subjects in a subject group, the apparatus comprising a computer for executing computer instructions, wherein the computer includes computer executable instructions for:
        determining a plurality of sample data sets corresponding to the subjects in the subject group;
        determining, from the sample data sets, a plurality of values for one or more mathematical parameters corresponding to one or more basis functions for the continuous mathematical model; and
        determining, from the values for the one or more mathematical parameters, one or more distribution-function parameters for specifying one or more distribution functions for the one

or more mathematical parameters, wherein a summation of the one or more basis functions multiplied by sampled values of the one or more distribution functions provides the continuous mathematical model of the feature.

Claim 118 (previously presented):   An apparatus according to claim 117, wherein determining the sample data sets includes receiving the sample data sets from an external data source and storing the sample data sets in a computer memory.

Claim 119 (currently amended):   An apparatus according to claim 118, wherein the sample data sets include values of blood pressure for the subjects in the subject group.

Claim 120 (currently amended):   An apparatus according to claim 117, wherein determining the values for the one or more mathematical parameters includes:

determining initial values for the one or more mathematical parameters according to an optimization criterion;

separating the initial values into bins with corresponding bin ranges ~~values~~; and

determining the values for the one or more mathematical parameters by replacing the initial values with the bins ~~bin values~~.

Claim 121 (previously presented):   An apparatus according to claim 117, wherein determining the values for the one or more mathematical parameters includes calculating the values for the one or more mathematical parameters from the sample data sets according to an optimization criterion.

Claim 122 (previously presented):   An apparatus according to claim 117, wherein determining the one or more distribution-function parameters includes calculating the one or more distribution-function parameters from the values for the one or more mathematical parameters according to an optimization criterion.

Claim 123 (currently amended): An apparatus according to claim 117, <u>wherein the</u> <u>computer</u> further ~~comprising executable~~ <u>includes computer</u> instructions for:

         simulating the feature by generating sampled values of the distribution functions; and

         displaying at least one statistical property of the simulated feature.

Claim 124 (previously presented): An apparatus according to claim 117, wherein determining the values for the one or more mathematical parameters corresponding to the one or more basis functions includes:

         selecting a plurality of initial basis functions;

         determining a plurality of values for a plurality of mathematical parameters corresponding to the initial basis functions;

         determining, from the values for the mathematical parameters corresponding to the initial basis functions, a correlation matrix for the initial basis functions; and

         determining, from the correlation matrix, the one or more basis functions according to a de-correlation criterion.

Claim 125 (previously presented): An apparatus according to claim 117, wherein

         the feature is a first feature selected from a plurality of features; and

         values for the features other than the first feature and values for the one or more distribution-function parameters specify the one or more distribution functions for the one or more mathematical parameters.

Claim 126 (currently amended): An apparatus according to claim 125, <u>wherein the</u> <u>computer</u> further ~~comprising executable~~ <u>includes computer</u> instructions for:

         simulating the first feature by computer, for given values of the features other than the first feature, by generating sampled values of the one or more distribution functions; and

         displaying at least one statistical property of the simulated first feature.

Claim 127 (previously presented): An apparatus according to claim 117, wherein the one or more basis functions include a single basis function and the summation includes a single term.

Claim 128 (previously presented): An apparatus according to claim 117, wherein the one or more basis functions include a plurality of orthogonal functions over a continuous interval.

Claim 129 (previously presented): An apparatus according to claim 117, wherein the one or more basis functions include one or more hybrid functions that characterize features common to the subject group over a continuous interval.

Claim 130 (previously presented): An apparatus according to claim 129, wherein

the continuous mathematical model of the feature includes a model for occlusion of a coronary artery over the continuous interval, and

the one or more hybrid functions include a first function for blood pressure and a second function for cholesterol level.

Claim 131 (previously presented): An apparatus according to claim 130, wherein the one or more hybrid functions include a third function for a product of the blood pressure and the cholesterol level.

Claim 132 (previously presented): An apparatus according to claim 117, wherein the subjects are biological subjects and the feature is a biological feature.

Claim 133 (previously presented): An apparatus according to claim 117, wherein the one or more distribution functions include at least one normal distribution function and the one or more distribution-function parameters include at least one corresponding standard-deviation parameter.

Claim 134 (previously presented):   A computer-readable medium that stores a computer program for generating a continuous mathematical model of a feature common to subjects in a subject group, the computer program comprising instructions for:

determining a plurality of sample data sets corresponding to the subjects in the subject group;

determining, from the sample data sets, a plurality of values for one or more mathematical parameters corresponding to one or more basis functions for the continuous mathematical model; and

determining, from the values for the one or more mathematical parameters, one or more distribution-function parameters for specifying one or more distribution functions for the one or more mathematical parameters, wherein a summation of the one or more basis functions multiplied by sampled values of the one or more distribution functions provides the continuous mathematical model of the feature.

Claim 135 (previously presented):   A computer-readable medium according to claim 134, wherein determining the sample data sets includes receiving the sample data sets from an external data source and storing the sample data sets in a computer memory.

Claim 136 (currently amended):   A computer-readable medium according to claim 135, wherein the sample data sets include values of blood pressure for the subjects in the subject group.

Claim 137 (currently amended):   A computer-readable medium according to claim 134, wherein determining the values for the one or more mathematical parameters includes:

determining initial values for the one or more mathematical parameters according to an optimization criterion;

separating the initial values into bins with corresponding bin ranges values; and

determining the values for the one or more mathematical parameters by replacing the initial values with the bins bin values.

Claim 138 (previously presented):   A computer-readable medium according to claim 134, wherein determining the values for the one or more mathematical parameters includes calculating the values for the one or more mathematical parameters from the sample data sets according to an optimization criterion.

Claim 139 (previously presented):   A computer-readable medium according to claim 134, wherein determining the one or more distribution-function parameters includes calculating the one or more distribution-function parameters from the values for the one or more mathematical parameters according to an optimization criterion.

Claim 140 (previously presented):   A computer-readable medium according to claim 134, wherein the computer program further comprises instructions for:

    simulating the feature by generating sampled values of the distribution functions; and

    displaying at least one statistical property of the simulated feature.

Claim 141 (previously presented):   A computer-readable medium according to claim 134, wherein determining the values for the one or more mathematical parameters corresponding to the one or more basis functions includes:

    selecting a plurality of initial basis functions;

    determining a plurality of values for a plurality of mathematical parameters corresponding to the initial basis functions;

    determining, from the values for the mathematical parameters corresponding to the initial basis functions, a correlation matrix for the initial basis functions; and

    determining, from the correlation matrix, the one or more basis functions according to a de-correlation criterion.

Claim 142 (previously presented):   A computer-readable medium according to claim 134, wherein

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the feature is a first feature selected from a plurality of features; and

values for the features other than the first feature and values for the one or more distribution-function parameters specify the one or more distribution functions for the one or more mathematical parameters.

Claim 143 (previously presented):   A computer-readable medium according to claim 142, wherein the computer program further comprises instructions for:

simulating the first feature, for given values of the features other than the first feature, by generating sampled values of the one or more distribution functions; and

displaying at least one statistical property of the simulated first feature.

Claim 144 (previously presented):   A computer-readable medium according to claim 134, wherein the one or more basis functions include a single basis function and the summation includes a single term.

Claim 145 (previously presented):   A computer-readable medium according to claim 134, wherein the one or more basis functions include a plurality of orthogonal functions over a continuous interval.

Claim 146 (previously presented):   A computer-readable medium according to claim 134, wherein the one or more basis functions include one or more hybrid functions that characterize features common to the subject group over a continuous interval.

Claim 147 (previously presented):   A computer-readable medium according to claim 146, wherein

the continuous mathematical model of the feature includes a model for occlusion of a coronary artery over the continuous interval, and

the one or more hybrid functions include a first function for blood pressure and a second function for cholesterol level.

Claim 148 (previously presented):   A computer-readable medium according to claim 147, wherein the one or more hybrid functions include a third function for a product of the blood pressure and the cholesterol level.

Claim 149 (previously presented):   A computer-readable medium according to claim 134, wherein the subjects are biological subjects and the feature is a biological feature.

Claim 150 (previously presented):   A computer-readable medium according to claim 134, wherein the one or more distribution functions include at least one normal distribution function and the one or more distribution-function parameters include at least one corresponding standard-deviation parameter.